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PATENT COOPERATION TREATY

FEB 23 2005

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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PCT

NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing
(day/month/year)

17 FEB 2005

Applicant's or agent's file reference

PU030015

IMPORTANT NOTIFICATION

International application No.

PCT/US04/00511

International filing date (day/month/year)

09 January 2004 (09.01.2004)

Priority date (day/month/year)

09 January 2003 (09.01.2003)

Applicant

THOMSON LICENSING S.A.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PU030015	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US04/00511	International filing date (day/month/year) 09 January 2004 (09.01.2004)	Priority date (day/month/year) 09 January 2003 (09.01.2003)	
International Patent Classification (IPC) or national classification and IPC IPC(7): H04J 3/22 and US Cl.: 370/395.52, 395.64, 432, 466, 486			
Applicant THOMSON LICENSING S.A.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>6</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 06 August 2004 (06.08.2004)		Date of completion of this report 03 December 2004 (03.12.2004)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Tri H. Phan <i>Rugenia Zozan</i> Telephone No. (571)272-3074	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/00511

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-12 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☒ the claims:
- pages NONE as originally filed/furnished
- pages* NONE as amended (together with any statement) under Article 19
- pages* 13-15 received by this Authority on 06 AUGUST 2004
- pages* NONE received by this Authority on _____
- ☒ the drawings:
- pages NONE as originally filed/furnished
- pages* 1-3 received by this Authority on 06 AUGUST 2004
- pages* NONE received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/00511**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>1-17</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-17</u>	NO
Industrial Applicability (IA)	Claims <u>1-17</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and Explanations (Rule 70.7)

Claims 1-17 lack an inventive step under PCT Article 33(3) as being obvious over Tomita (US 2002/0003799 A1) in view of Tiernan et al. (6,172,988 B1). Tomita discloses about the data transmission method and device (figs. 9, 15; paragraph [0046-0047]) to be used for transmitting real time data such as video conference system, e.g. multicast, and video on demand 'VoD' system conforming to IP by using TCP, UDP or RTP protocol (figs. 1-3, 8, 10-13) to utilize telecommunications networks; wherein the transport stream 'MPEG2-TS' of the elementary streams 'ES' is received by the data reading section, divided to produce PES packets (figs. 5-7) and RTP packets (figs. 12-13) by the RTP packet preparing section, prepared IP packets by adding IP or UDP header to the top of the RTP packets (figs. 8, 10-11) and transmitted to the IP network by the data transmitter. Tomita does disclose about the packet identifier 'PID' of the TS packet (see paragraph [0017]); but fails to explicitly disclose about the wireless transmission with multicast IP addresses; however, digital broadcasting via wireless transmission and multicasting IP addresses are well known in the art; therefore, it would have been obvious to one of ordinary skill in the art to implement the digital broadcast via wireless with multicast IP address. Tomita also fails to explicitly disclose about the associated PSI, which includes the PAT, PMT, CAT and NIT. Tiernan discloses in Fig. 1-9; about the method and system for transmitting digital signals containing digital video and audio signals, such as MPEG2, conforming to packet-based multiplexed communication, e.g. IP; wherein the transport stream 'TS' components including PID, PSI with PAT, PMT, CAT and other control information (for example see col. 1, line 46 through col. 2, line 13). Therefore, it would have been obvious to one of ordinary skill in the art to implement the associated PSI with PAT, PMT, CAT and other control information into the PID for controlling and conforming to the packet-based system as disclosed by Tiernan.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 15-17 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 15-17 are indefinite for the following reason(s): because the subject matter of independent claims 1, 10 and 12-14 is not consistent with claim 15; which leaves a doubt as to the scope of protection sought.

Regarding claims 1, 10 and 12-14, the preferential device and method for transmitting and receiving audio and video data, with means for receiving, means for demultiplexing, means for reassembling, means for encapsulating, means for communicating. On the contrary in the corresponding computer readable medium claim 15, the preferential data structure is mentioned for first field, second field, third field, fourth field and the indicator flag in the packet.

What is claimed is:

1. A device for wirelessly transmitting and receiving audio and video data, comprising:
 - a means for receiving a transmission stream having data formatted into distinct packets
 - 5 that includes at least one PID and an associated PSI, including a PAT, a PMT, a CAT and a NIT; and
 - a means for demultiplexing the PSI based upon one or more PID assignments to unique transport stream packets; and
 - a means for reassembling the PSI in accordance with a RTP data flow; and
 - 10 a means for encapsulating the RTP data flow into one or more IP packets with corresponding multicast addresses; and
 - a means for communicating the reassembled transport stream.
2. The wireless device in claim 1, wherein the means for communicating comprises a WLAN.
- 15 3. The wireless device in claim 1, wherein the means for reassembling the PSI includes a means for inserting a multicasting IP address for each associated PMT.
4. The wireless device in claim 3, wherein the PMT points to a program addressed by the
- 20 multicasting IP address.
5. The wireless device in claim 3, wherein the means for inserting a multicasting IP address for each associated PMT includes a means to calculate a CRC.
- 25 6. The wireless device in claim 3, wherein the PSI contains a descriptor field in which the multicasting IP address is stored.
7. The wireless device in claim 3, wherein the PSI is re-formed from the PAT and the PMT.
- 30 8. The wireless device in claim 1, wherein the PSI contains a flag to indicate that the PSI is unchanged from a prior transmission.
9. The wireless device in claim 1, wherein the PSI contains a flag to indicate that the PSI is changed from a prior transmission.

10. A mobile terminal adapted to wirelessly receive audio and video program data, comprising:

a means for receiving a transmission stream having data formatted into one or more distinct packets that include at least one multicasting IP address and an associated PSI,

5 including a PAT and a PMT;

a means for demultiplexing the PSI based upon one or more multicasting IP address assignments to unique transport stream packets in accordance with a RTP data flow;

a means for extracting a multicast address; and

a means for receiving a transmission stream associated with the multicast address.

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11. The mobile terminal in claim 10, wherein the receiving means comprises means for receiving data according to the IEEE 802.11 standards.

12. A method for mapping MPEG-2 TS into an IP-based RTP/UDP/IP stack comprising the steps of:

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receiving a transmission stream having data formatted into distinct packets that include at least one PID and associated PSI, including a PAT and a PMT;

demultiplexing the PSI based upon one or more PID assignments to unique transport stream packets;

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reassembling the PSI in accordance with an RTP data flow

encapsulating the RTP data flow into IP packets with a multicast address

communicating reassembled transport stream over a WLAN.

13. A method for mapping MPEG-2 TS into an IP-based RTP/UDP/IP stack comprising the steps of:

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receiving a transmission stream having data formatted into distinct packets that include at least one PID and an associated PSI, including a PAT and a PMT; and

demultiplexing the PSI based upon one or more PID assignments to unique transport packets in accordance with an RTP data flow; and

30

extracting a multicast address; and

assembling a video program associated with the multicast address.

14. A method of decoding a digitally compressed video stream that has been packetized and transmitted over a packet-based network in a sequence of packets, the method comprising the steps of:

- 5 receiving packets associated with at least one multicasting IP address and associated PSI, including a PAT and a PMT;
- determining which transmitted packets associated with the PSI based upon a PID assignment to unique transport stream packets in accordance with an RTP data flow; and
- a means for extracting a multicast address; and
- a means for receiving a transmission stream associated with the multicast address.

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15. A computer readable medium for mapping MPEG-2 into an IP-based RTP/UDP/IP stack having stored thereon one or more data structure selected from the group comprising of: one distinct packet that includes at least one first field containing an IP multicast address, a second field representing a PAT and an associated PMT; a third field containing data

15 representing an RTP head and a fourth field containing data representing a program.

16. The computer readable medium for mapping in claim 15, wherein the PSI further contains a flag to indicate that the PSI is unchanged from a prior transmission.

20 17. The computer readable medium for mapping in claim 15, wherein the PSI further contains a flag to indicate that the PSI is changed from a prior transmission.

IPEA/US

1/3

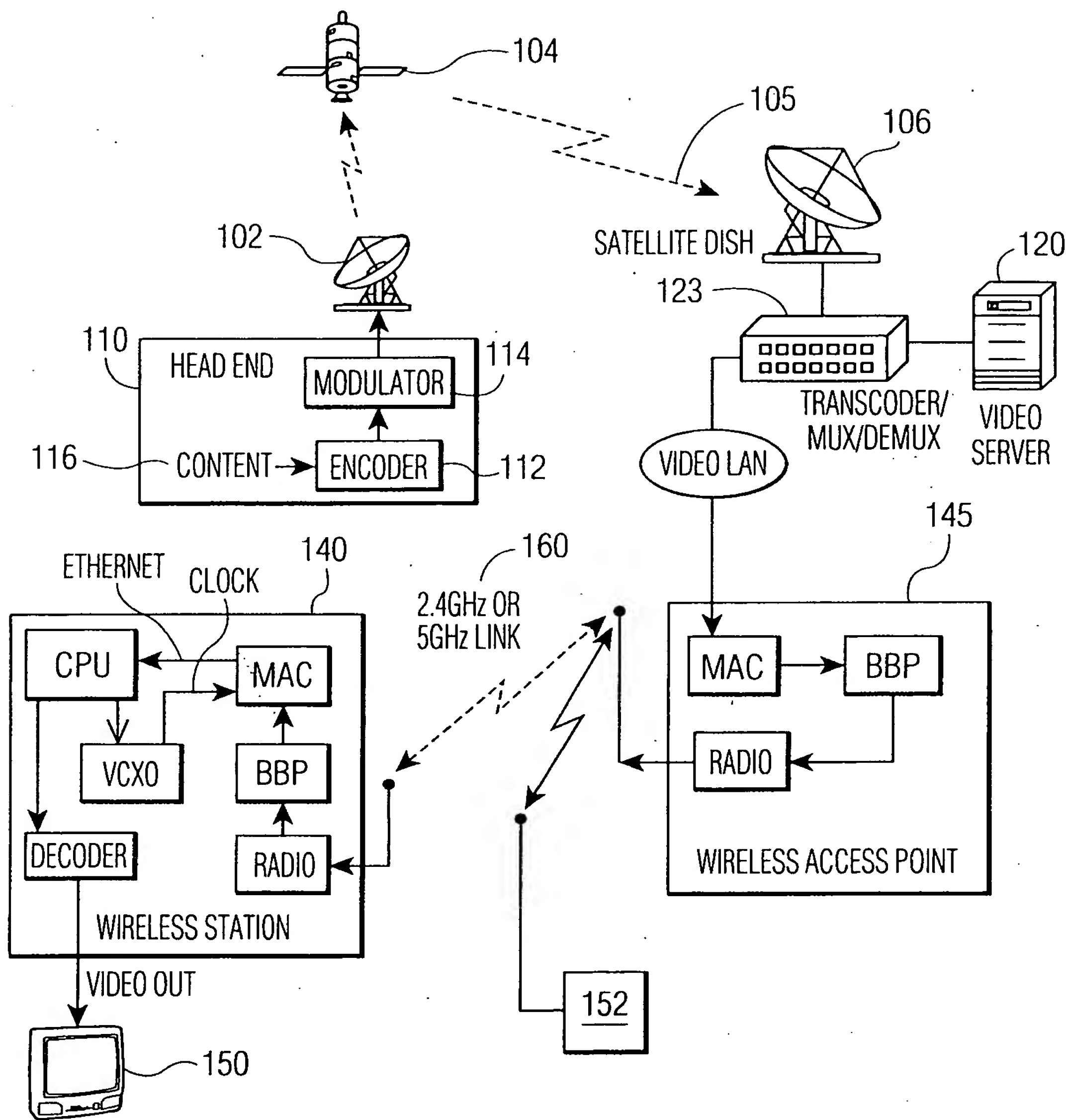


FIG. 1

AMENDED SHEET

2/3

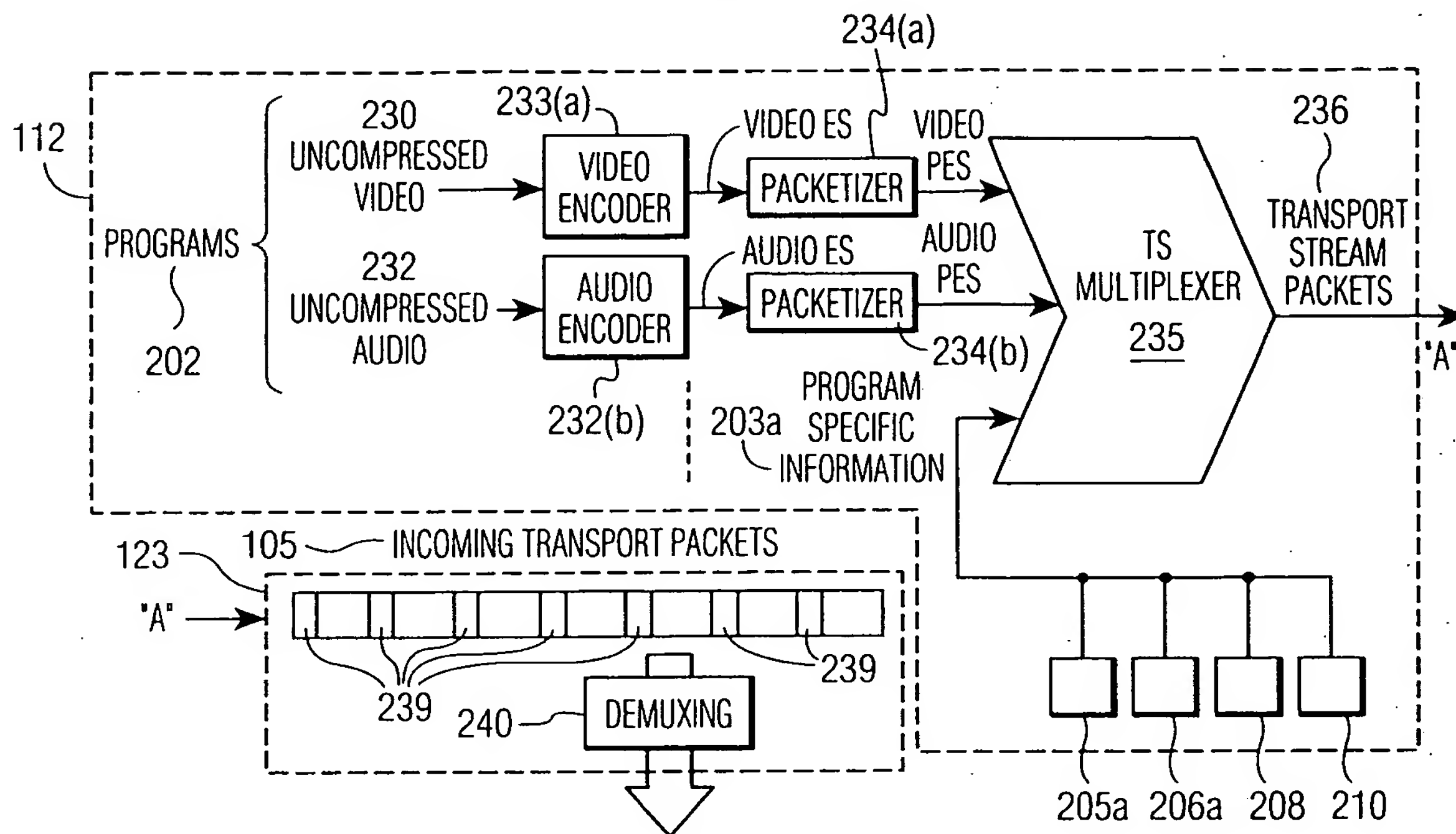


FIG. 2A

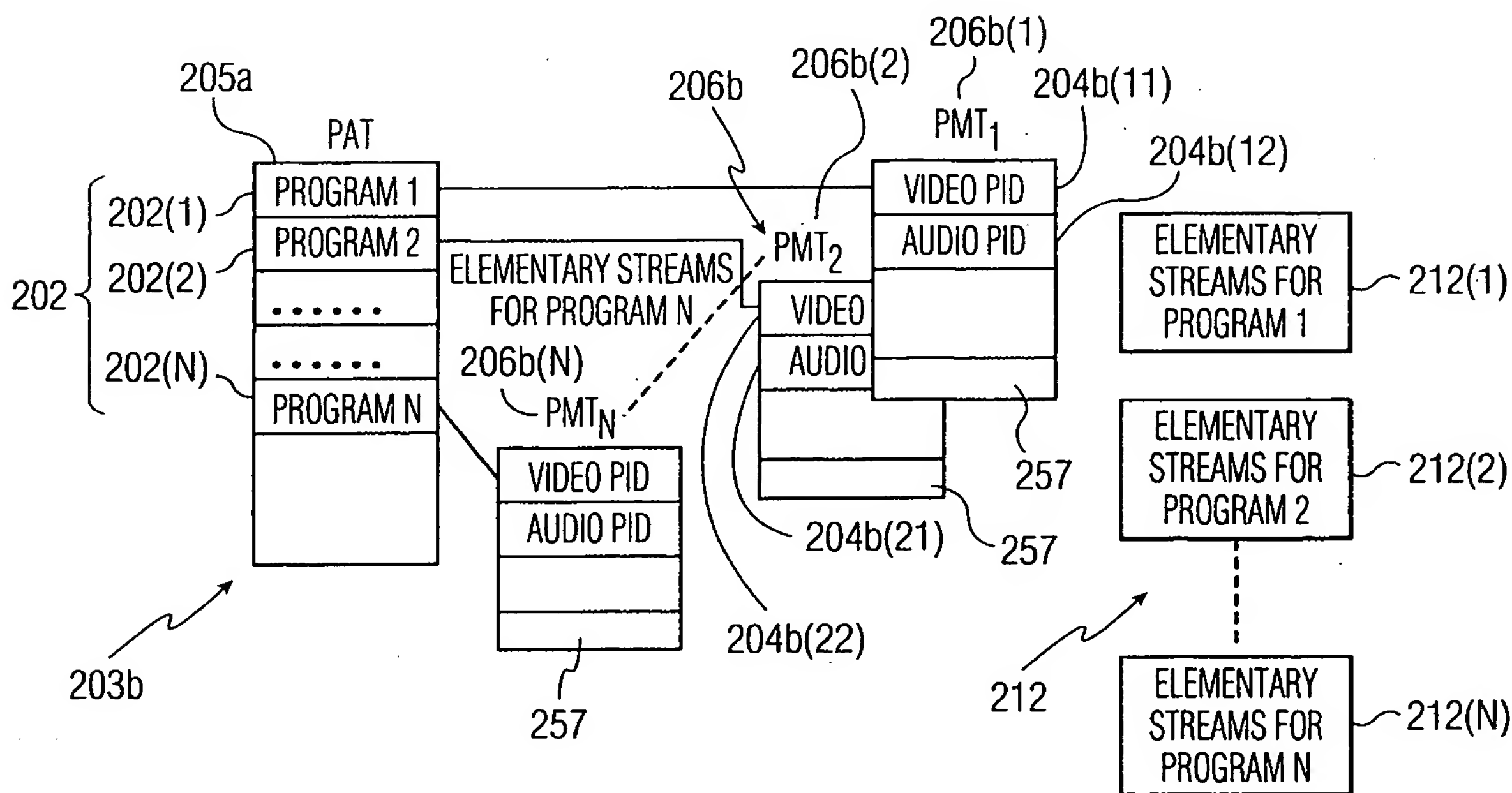


FIG. 2B

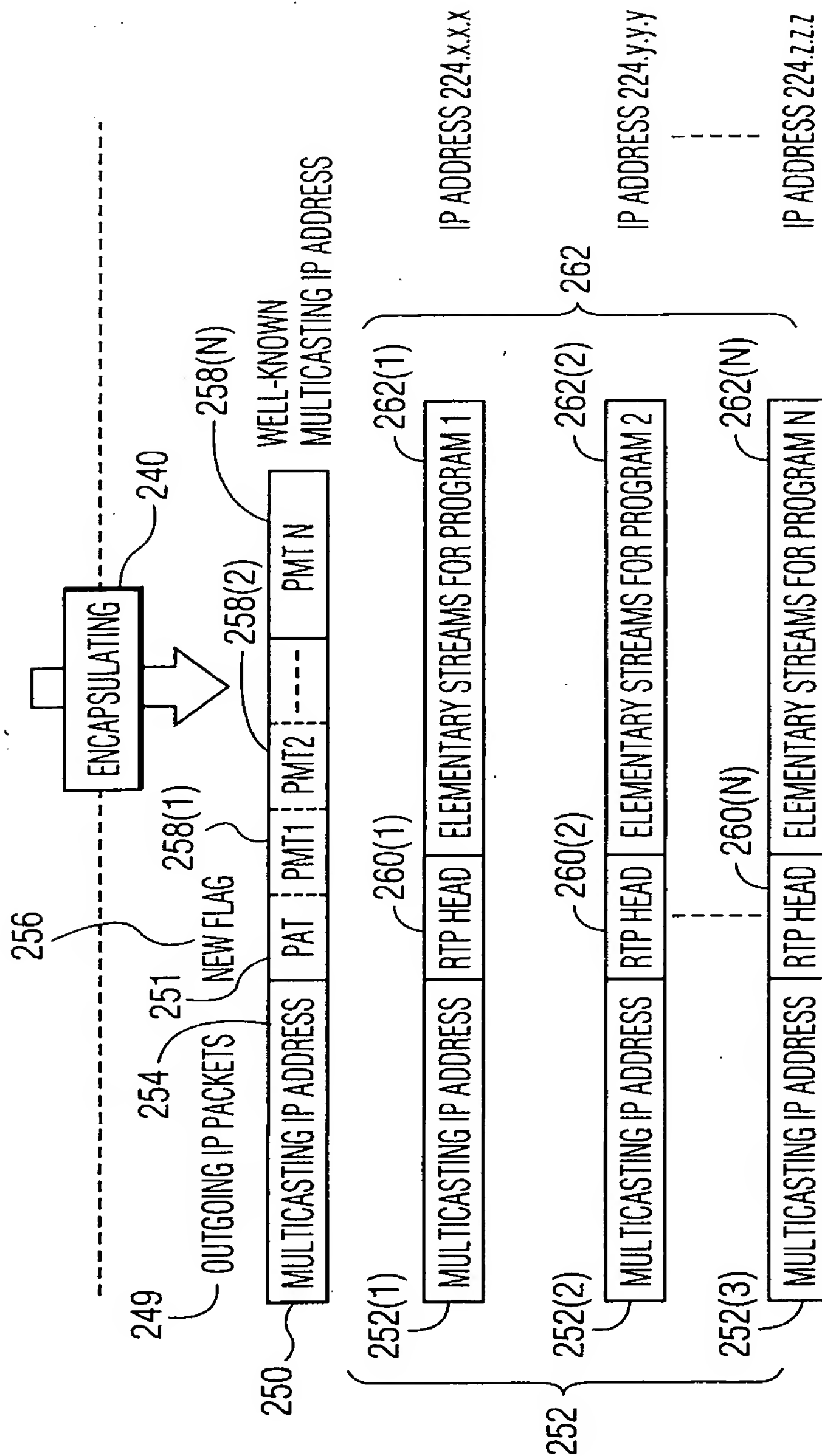


FIG. 2C